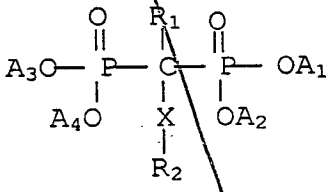
Patent Claims

1. Inactivation of the γδ-T cells for the prevention and treatment of diseases caused by parasites, viruses, bacteria and fungi.

2. Use of bisphosphonic acids of the general formula



(I),

in which

A_1, A_2, A_3, A_4, which may be identical or different, are selected from the group which consists of hydrogen, substituted and unsubstituted alkyl, substituted and unsubstituted aryl, substituted and unsubstituted aralkyl, substituted and unsubstituted cycloalkyl, substituted and unsubstituted heterocyclic residue, metals of main groups I, II and III of the periodic system, such as Na, K, Ca, Mg, Al as well as substituted and unsubstituted ammonium and ammonium compounds derived from ethylenediamine or amino acids,

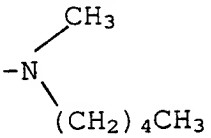
X, which may also be absent, is selected from the group which consists of alkylene, alkenylene and hydroxyalkylene,

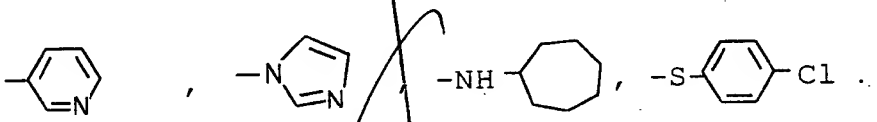
R_1 and R_2, which are identical or different, are selected from the group which consists of H, OH, $-NH_2$, substituted and unsubstituted acyl, substituted and unsubstituted alkyl, substituted and unsubstituted aryl, substituted and unsubstituted cycloalkyl, substituted and unsubstituted aralkyl, substituted and unsubstituted heterocyclic residue and $-SR_3$, Cl and $-NR_3R_4$, in which

R_3, R_4, which may be identical or different, are selected from the group which consists of H, OH, substituted and unsubstituted acyl, substituted and unsubstituted alkyl, substituted and unsubstituted aryl, substituted and unsubstituted aralkyl, substituted and unsubstituted cycloalkyl and substituted and unsubstituted heterocyclic residue, and the pharmaceutically compatible salts, amides, esters and salts of the esters or compounds which, on administration, form the compounds to be administered as metabolites or breakdown products, for inactivating γδ-T cells.

3. Use according to claim 2, characterised in that

A_1, A_2, A_3, A_4, which may be identical or different, are selected from the group which consists of hydrogen, substituted and unsubstituted alkyl, substituted and unsubstituted aryl, substituted and unsubstituted aralkyl, substituted and unsubstituted cycloalkyl, substituted and unsubstituted heterocyclic residue, metals of main groups I, II and III of the periodic system, such as Na, K, substituted and unsubstituted ammonium and ammonium compounds derived from ethylenediamine or amino acids,
X, which may also be absent, is selected from the group which consists of alkyl, $(CH_2)_{0-6}$, in particular $(CH_2)_{1-5}$, and amidino,
R_1 is selected from the group which consists of H, OH, NH_2, $-CH_3$, and

R_2 is selected from the group which consists of $-NH_2$, 



4. Use according to claim 3,
characterised in that
the bisphosphonates are selected from the group which consists of amino-hydroxy-methylidene-bisphosphonic acid,
2-amino-1-hydroxyethylidene-1,1-bisphosphonic acid
3-amino-1-hydroxypropylidene-1,1-bisphosphonic acid,
4-amino-1-hydroxybutylidene-1,1-bisphosphonic acid,
6-amino-1-hydroxyhexylidene-1,1-bisphosphonic acid,
amidinomethylene-bisphosphonic acid,
3-methylpentylamino-1-hydroxypropylidene-1,1-bisphosphonic acid,
2-(3-pyridinyl)-1-hydroxyethylidene-bisphosphonic acid,
1-hydroxy-2-(imidazol-1-yl)-ethylidene-1,1-bisphosphonic acid,
cycloheptylaminomethylenediphosphonic acid,
4-chlorophenyl-thiomethylene-1,1-bisphosphonic acid and the derivatives thereof.

5. Use according to one of the preceding claims for the treatment and prophylaxis of acne vulgaris, tuberculosis in humans and animals, leprosy and further mycobacterioses in humans and animals, paratuberculosis in animals, Campylobacter enteritis infections in

humans and animals, of Helicobacter pylori and Chlamydia for the prevention or treatment of cardiac and vascular diseases, in particular coronary cardiac disease.

6. Use according to one of claims 1 to 4 in the eradication of bacteria and viruses.

7. Use according to claim 6 for the eradication of Helicobacter pylori and Chlamydia.

8. Use according to claim 6 for the eradication of eradication of papillomaviruses to prevent tumours, in particular tumours of the reproductive organs caused by papillomaviruses in humans, eradication of herpesviruses, eradication of human herpesvirus 8 to treat Kaposi's sarcoma, eradication of cytomegaloviruses before transplantations, eradication of Epstein-Barr viruses before transplantation and to prevent tumours associated with Epstein-Barr viruses, eradication of hepatitis viruses to treat chronic liver disease and to prevent liver tumours and cirrhosis of the liver, eradication of coxsackie-viruses in cardiomyopathy, eradication of coxsackie-viruses in diabetes mellitus patients, eradication of immunodeficiency viruses in humans and animals, treatment of accompanying infections in AIDS patients, treatment of respiratory tract inflammation of viral causation (laryngeal papilloma, hyperplasia, rhinitis, pharyngitis, bronchitis, pneumonia), of the liver and gall system (hepatitis, cholangitis, hepatocellular carcinoma), of the lymphatic tissue (mononucleosis, lymphadenitis), of the haemopoietic system, of the skin (warts, dermatitis, herpes labialis, herpes febrilis, herpes zoster, shingles), of the mucous membranes (papillomas, conjunctival papillomas, hyperplasia, dysplasia), of the cardiovascular system (arteriitis, myocarditis, endocarditis, pericarditis), of the kidney/urinary system, of the reproductive organs (anogenital lesions, warts, genital warts, sharp condylomas, dysplasia, papillomas, cervical dysplasia, condyloma acuminatum, epidermodysplasia verruciformis), of the locomotory organs (myositis, myalgia).

9. Use according to claim 8 for the eradication of the hepatitis C virus.

10. Use according to one of the preceding claims in a pharmaceutical preparation which additionally contains a pharmaceutically acceptable excipient.

11. Use according to one of the preceding claims as an adjuvant to vaccines.